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(71) Assignee: 000003964
Nitto Denko Co., Ltd.
1-1-2 Shimohozumi, Ibaraki-shi, Osaka

(72) Inventor:
Hasegawa, Yoshitsugu
Nitto Denko Co., Ltd.
1-1-2 Shimohozumi, Ibaraki-shi, Osaka

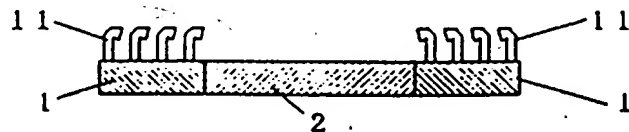
(72) Inventor:
Matsuoka, Naoki
Nitto Denko Co., Ltd.
1-1-2 Shimohozumi, Ibaraki-shi, Osaka

(72) Attorney
Patent attorney: Fujimoto, Tsutomu

(54) [Title of the invention] Fastener

(57) [Summary]

[Objective] To obtain a fastener showing good properties of fastening, fixing, reusing and would not cause damages to the objects to be fastened, having appropriate holding capability and excellent in mass production, for fastening end of rolls of rough surface materials such as fabrics and non-woven fabrics, and for fixing such as bandage and paper diapers.



[Structure]

Fastener which has fastening sections (1) made of hard plastics on the both ends of an elastic section (2) comprised of thermo-plastic elastomer having rubber elasticity as a single unit, and has hooking sections comprised of multiple numbers of protrusions (11) on one side and the same side of the fastening sections.

[Patent Claims]

[Claim 1] Fastener which is characterized by having fastening sections made of hard plastics on the both ends of an elastic section comprised of thermo-plastic elastomer having rubber elasticity as a single unit, and having hooking sections comprised of multiple numbers of protrusions on one side and the same side of the fastening sections.

[Claim 2] Fastener which is described in the claim 1 and having a holding layer which bonds with the said hooking sections on the back side of the fastening sections that have hooking sections.

[Claim 3] Fastener which is described in the claim 1 or 2 and the fastening sections of it having the hooking sections are comprised with a strong plastics layer, and having a plastics layer which has good adhesion to adhesives on the back side of the fastening sections that have hooking sections.

[Detail explanation of the invention]

[0001]

[Application field in the industry] This invention is related with a fastener which is convenient for fastening end of rolls of such as fabrics and non-woven fabrics, and for fixing such as bandage and paper diapers.

[0002]

[Prior art] Currently, pressure sensitive tapes and magic tape* have been known as fasteners. However, the pressure sensitive tape is not suitable for adhering to materials with rough surface such as fabrics and non-woven fabrics which tends to be detached when it is used to hold the end of rolls, and also it had a problem that the pressure sensitive adhesive would be transferred to such as the fabric. Further, in case of such as paper diapers, there has been a problem that adhesion is easily lost if handled by hands that have used cream or ointment as the cream or ointment would migrate to the adhesion surface. There has been a proposal of paper diaper using the magic tape* however it has a difficulty that the adjustment and control is difficult to fix in appropriate condition of tightness that it would not to restrict the motion of a baby and would not peel off by the motion of a baby.

Translator's note: "Magic tape" is a common name for "Velcro" type tape in Japan which does not mean "Magic Mending tape".

[0003] On the other hand, for such as fixing bandages, flat rubber band attached with fastening metal pieces and nets have been known. However, with the flat rubber band attached with fastening metal pieces easily cause damages due to the holes caused by the fastening metal pieces, and the net has poor holding which would make the bandage loose due to the motion. Tapes for holding bandages are also known, however, it is poor at adhesion as the said adhesive tape and the bandage would get loose due to the motion and has a drawback that it accompanies a pain in skin when removing it.

[0004]

[Problems that the invention is to solve] The objective of this invention is to develop a fastener showing a good binding or binding capability, an ability for repeated use and an ability not to cause damages to the objects to be fastened, having appropriate tightening capability in such as holding end of rolls of rough surface materials such as fabrics and non woven fabrics and in fixing such as bandages paper diapers, and is good in mass production capability.

[0005]

[Means to solve the problems] This invention is to provide a fastener which has fastening sections made of hard plastics on the both ends of an elastic section comprised of thermo-plastic elastomer having rubber elasticity as a single unit, and has hooking sections comprised of multiple numbers of protrusions on one side and the same side of the fastening sections.

[0006]

[Function] Thanks to the said structure which is constructed by providing the fastening sections on the both sides of the elastic section in the middle in a single unit, it is able to provide appropriate tightening capability and good tying or fixing capability, based on such as the smooth transmission capability of the stress at the elastic section to the fastening sections. Also, by forming the fastening sections with multiple protrusions made of hard plastics, it is able to provide a good reusability and the capability not to damage the objects to be fastened.

[0007]

[Execution examples] The fastener of this invention comprises of having fastening sections made of hard plastics on the both ends of an elastic section comprised of thermo-plastic elastomer having rubber elasticity as a single unit, and having hooking sections comprised of multiple numbers of protrusions on one side

and the same side of the fastening sections. Its examples are shown in Figure 1 and Figure 3 through Figure 5. 1 is the fastening section, 2 is the elastic section and 11 is the protrusion that forms the hooking section.

[0008] As for the thermoplastic elastomer having rubber elasticity that forms the elastic section, it is able to use one having appropriate elasticity depending on such as desired tightening force. As for the examples of the thermoplastic elastomers, such as polyurethane elastomer, polyolefin elastomer, polystyrene elastomer, soft polyvinyl chloride, and several types of rubber polymers may be listed which are described in the patent publication Shou 63-86784, patent publication Shou 63-142086, and utility right publication Hei 1-130359.

[0009] The elastic section is normally formed in sheet shape or tape shape. Its size is appropriately determined depending on such as the purpose of its use. From the handling and ease of production or fabrication standpoints, its thickness is preferable to be 1 mm or less, especially 0.01 to 0.5 mm, and more preferably 0.05 to 0.2 mm. And its width is preferred to be 1 to 200 mm, especially 5 to 100 mm and more preferably 10 to 20 mm is common. The elasticity of the elastic section may be controlled by its dimensional control such as thickness, width and length as well as controlling the elasticity of the said material.

[0010] The fastening sections are formed on the both side having the elastic section between them using hard plastics as a single unit with the elastic section. As for the hard plastics, appropriate ones may be used and as for the examples of them, such as polyethylene, polypropylene, polystyrene, polyester, ABS resin, polycarbonate, polyamide, polyacetal, PBT, and PPS may be listed.

[0011] The forming of the elastic section and the fastening section in a single unit may be done by such as co-extrusion forming, for example. Therefore, the combination of the thermoplastic elastomer for forming the elastic section and the hard plastics for forming the fastening sections is appropriately determined from the standpoint of such as the boundary adhesion between the elastic section and the fixing sections, and forming property of especially its fastening sections. As for the preferable combinations from the standpoint such as forming property, combinations of such as ethylene-propylene elastomer or ethylene-butylene-styrene elastomer and polypropylene may be listed.

[0012] The hooking sections provided in one side of the fastening sections are formed with multiple number of protrusions. The hooking structure of each protrusion may be made into appropriate structures as shown in the Figures 2(a) through (e) making the tips of the protrusions in hook shapes 12, 13 and 14, or in

mushroom shape 15 and 16, which are able to hook onto fiber or string of rough surface such as fabrics, non-woven fabrics and pile fabrics, or hook between fibers of them. Accordingly, it is able to make the protrusion shape in the shape of magic tapes which have been known to the public.

[0013] The hooking sections are provided on the same side of the fastening sections on the both sides of the elastic section for the ease of handling. If the protrusions have hook shape tips, there is an advantage that the binding force gets stronger because it works to each other when the tips are in uniform direction at each fastening sections as shown in the drawing and they are in a situation that they are facing each other at the fastening sections at the both ends. The direction of the tip of the said protrusions is also related with the releasing property of the fastener, therefore, it should not be limited within the above described uniform and opposing condition in this invention but such as the uniformity at each fastening section and the opposing direction at both ends should be appropriately determined based on such as properties of removing.

[0014] The density of the protrusions at the hooking section of the fastening sections may be appropriately determined based on such as binding force and removal property. Generally, the protrusion density should be no less than 1 for 1 cm², preferably 3 to 1000 and especially 5 to 200.

[0015] The size of the fastening section shall be appropriately determined based on such as the objectives of use, and from the such as handling viewpoint, its thickness is preferable to be 1 mm or less and more preferably 0.01 to 0.5 mm and especially 0.05 to 0.2 mm. Also the height of the protrusions are preferred to be 1 mm or less, more preferably 0.1 to 1.0 mm, and especially 0.4 to 0.6 mm from the standpoint of such as the strength. Its width is generally 1 to 200 mm, preferably 2 to 100 mm and, especially 3 to 50 mm, and its length is generally 5 to 50 mm, preferably 3 to 30 mm and especially 12 to 20 mm. Further, the fastening sections are more preferable if their thickness is thinner as no more than 0.1 mm, for example.

[0016] As for a concrete example of co-extrusion process for forming the said elastic section and fastening sections in a single unit, such as a process to form with a single die using two extruders. Namely, it is able to produce it in continuous sheet form by connecting nozzles of two extruders to one die and by co-extruding so that thermoplastic elastomer for forming elastic section comes to the middle and hard plastic for forming fastening sections comes to the both sides of it and they merge at the die exit.

[0017] The intended fastener is able to be continuously produced in continuous form by following process; take up the continuous sheet formed in the above described process at the exit of the die with the first take-up roll for cooling by using a roll with many holed provided on a part of its surface as the first take-up roll, press with a press roll so that the molten hard plastics for forming the fastening sections will flow into the holes and cool down, then take up to the second take-up roll from the first take-up roll with following processes to form the tip of the protrusions that have been formed by the holes on the first take-up roll into specific shapes such as hook or mushroom shapes by heat treatment with appropriate heat source such as a heat roll or a hot air dryer. The fastener is provided by cutting the continuous sheet in specified width.

[0018] In this invention, as shown in the Figures 3 and 5 as examples, it is able to make as fastening device that has holding layers 3 and 6 which couples with the fastening sections on the backside of the said fastening sections 1 having the hooking sections. According to this, it is able to form a ring shape object by coupling the hooking section of one side of the fastening sections with the holding layer of the other side of the fastening sections, and use it as a tying device for rod or wire materials. As for the holding layer, it is able to use rough surface materials such as fabrics, non-woven fabrics and piled cloth.

[0019] The holding layer may be adhered in appropriate adhesion system such as directly on the backside of the fastening sections 1 as shown in the figure 3, or adhered on the backside of the fastening sections 1 with adhesive between them as shown in the Figure 5. For example the said direct adhesion may be done by introducing material that forms the holding layer between the first take-up roll and the press roll to execute lamination at compressing process by press rolls during the above described protrusion forming process. The adhesion process using adhesive may be done at any appropriate process steps.

[0020] In the above described process, it is preferable to form the fastening sections 1 having hooking sections with hard and strong plastics layer and to provide a plastic layer which well adheres to adhesives on the backside of the fastening sections 1 as shown in the figure 4 from the standpoint of such as improvement of durability by adhesion treating the holding layer with a good contact. Accordingly in this case, the holding layer 6 is provided with a plastics layer 4 on the backside of the fastening sections 1, and if adhesive is used, the holding layer is provided on the backside of the fastening sections with the plastics layer 4 and the adhesive layer 5 between them.

[0021] As for the said hard and strong plastics that forms the fastening sections, such as polypropylene, polyamide and polyester are listed, for example. On the other hand, as for the plastics with good adhesion, modified polymers or co-polymers of the said hard and strong plastics, or polymers that are used for adhesives such as ethylene-vinyl acetate co-polymer are preferable for example from the standpoint of such as good adhesion with the said hard and strong plastics.

[0022] It becomes possible to obtain good adhesion to the said good adhesion plastics layer with double coated tapes using appropriate adhesives such as acrylic, rubber, and styrene-isoprene block polymer. Further, the double coated tape that has been adhered to the good adhesion plastics layer may be used for other adhering purposes other than adhering the holding layer.

[0023] Application of the good adhesion plastics layer to the backside of the fastening sections may be formed efficiently by adding one more extruder, which means connecting nozzles of three extruders to one die, to co-extrude so that the hard plastics for forming the fastening sections and the plastics for forming the good adhesion layer merge together in laid over condition, during the said continuous sheet forming by the co-extrusion process. In this case, the hard plastic layer for forming the fastening sections is layer over to come the first take-up roll side which has been formed with multiple number of holes.

[0024] Example 1

Fastener of sheet thickness 0.1 mm was continuously obtained by following process; nozzles of two injection molding machines were connected to a single die, using a co-extrusion process in which thermoplastic elastomer for forming elastic section comes to the center and hard plastics for forming fastening sections comes to the both sides of it and they merge together and connecting, a continuous sheet that has polypropylene sections on the both sides of ethylene-propylene elastomer was formed, it was taken up at the die exit with the first take-up roll for cooling provided with multiple number of holes of 0.5 mm diameter, 1 mm depth and 1 mm pitch formed to respond to the polypropylene sections, and it was simultaneously compressed and cooled down with a press roll, then while taking up with the second take-up roll the tips of the protrusions formed on the sheet was made to instantly contact with a hot plate at 150 to 160 °C then immediately cooled down to under 100 °C to form protrusions of about 0.6 mm tall with their tips bent in hook shape, and the continuous sheet was cut into 30 mm wide.

[0025] When the said fastener was used as roll end holder for holding fabric roll end, it was able to hold the roll well, and even the eleventh time of the end holding

and removing were done well after repeating the actions of the end holding and removing for 10 times. Also, damages such as breakage of the fabric was not found by visually inspection after the removing.

[0026] Example 2

A fastener was obtained as same as the Example 1 except for inserting face towel between the first take-up roll and the press roll and laminating it which is in corresponding width with the polypropylene sections to be located on the backside of the polypropylene sections, when pressing with the press roll.

[0027] The said fastener was used as a tie for pipes or electric cables, and it was able to tie in a good condition without causing falling apart. Further, it was able to do the eleventh tying and untying in good conditions after repeating tying and untying for ten times.

[0028] Example 3

Continuous sheet in fastener shape was obtained as same as the Example 1 except for forming the continuous sheet by connecting nozzles of three extruders to one die and co-extruding so that polypropylene part and ethylene-vinyl acetate copolymer part merge in overlaid each other at the die exit. Further, the thickness of the polypropylene layer and the ethylene-vinyl acetate copolymer layer were in the same thickness.

[0029] Then face towel fabric was laminated to ethylene-vinyl acetate copolymer surface of the said continuous sheet with acrylic double coated tape, and it was cut as same as the Example 1 to obtain a fastener. The said fastener was used as a tie for pipes or electric cables, and the result was as good as the case of the Example 2.

[0030]

[Effect of invention] According to this invention, it is able to obtain fasteners which show good properties of fastening, fixing, reusing and no destruction against objects to be fastened, having appropriate holding capability with elasticity and excellent in mass production, and are able to be widely used for such as fastening end of rolls of rough surface material such as fabrics and non-woven fabrics and for fixing bandage and paper diapers.

[Brief explanation of drawings]

[Figure 1] cross sectional drawing of an Example

[Figure 2] explanation drawing for example shapes of protrusions

[Figure 3] cross sectional drawing of another Example

[Figure 4] cross sectional drawing of other Example

[Figure 5] cross sectional drawing of other Example

[Explanation of symbols]

1: fastening section

11, 12, 13, 14, 15, 16: protrusions

2: elastic section

3, 6: holding layer

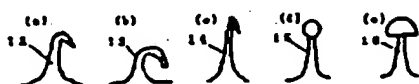
4: plastics layer having good adhesion to adhesives

5: adhesive layer

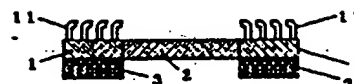
[Figure 1]



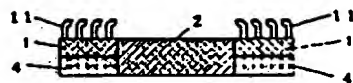
[Figure 2]



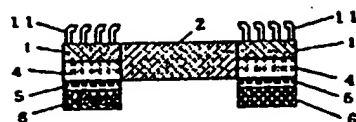
[Figure 3]



[Figure 4]



[Figure 5]



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(71) 出願人 000003964

日東電工株式会社

大阪府茨木市下穂積1丁目1番2号

(72) 発明者 長谷川 美次

大阪府茨木市下穂積1丁目1番2号 日東
電工株式会社内

(72) 発明者 松岡 直樹

大阪府茨木市下穂積1丁目1番2号 日東
電工株式会社内

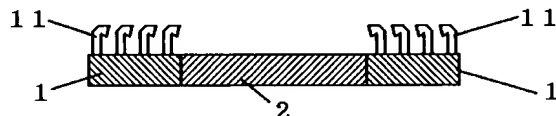
(74) 代理人 弁理士 藤本 勉

(54) 【発明の名称】 止め具

(57) 【要約】

【目的】 織布や不織布等の粗面素材の巻物の端部巻止め、包帯や紙おむつ等の固定などにおいて、良好な結束ないし固定性、再使用性、被止め材の非損傷性を示し、適度な締付け性を有して量産性にも優れる止め具を得ること。

【構成】 ゴム弾性を有する熱可塑性エラストマからなる伸縮部(2)の両側に硬質プラスチックからなる系止部(1)を一体的に有し、その両側の系止部が同じ側の片面に多数の突起(11)からなる引掛け部を有する止め具。



【特許請求の範囲】

【請求項1】 ゴム弾性を有する熱可塑性エラストマからなる伸縮部の両側に硬質プラスチックからなる系止部を一体的に有し、その両側の系止部が同じ側の片面に多数の突起からなる引掛け部を有することを特徴とする止め具。

【請求項2】 引掛け部を有する系止部の裏面側に前記引掛け部と結合する保持層を有する請求項1に記載の止め具。

【請求項3】 引掛け部を有する系止部が硬質かつ強靱なプラスチック層からなり、系止部の裏面に接着剤良密着性のプラスチック層を有する請求項1又は2に記載の止め具。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、織布や不織布等の巻物の端部巻止め、包帯や紙おむつ等の固定などに好適な止め具に関する。

【0002】

【従来の技術】従来、止め具としては粘着テープやマジックテープが知られていた。しかしながら、粘着テープでは織布や不織布の如き表面が粗いものへの接着は不向きで巻物を巻止めても剥がれやすく、粘着剤が織布等に移着しやすい問題点があった。また紙おむつなどでは、クリームや軟膏を使用した手でのおむつ操作をした場合に粘着面にクリームが移着して接着力を喪失しやすい問題点もあった。マジックテープを使用した紙おむつの提案もあるが、赤子の動きを阻害せず、かつ赤子の動き等で剥がれないように適度な締付け状態に固定する調節加減が難しい難点がある。

【0003】一方、包帯の固定などでは止め金具付平ゴム紐やネットが知られていた。しかしながら、止め金具付平ゴム紐ではその止め金具による孔明き等で傷付やすく、ネットでは固定力に乏しくて動いてるうちに包帯が緩みやすい問題点があった。包帯止め用のテープも知られているが、上記粘着テープの如くに接着力に乏しくて動いてるうちに包帯が緩みやすく、また剥がす際に皮膚の痛みを伴う難点がある。

【0004】

【発明が解決しようとする課題】本発明は、織布や不織布等の粗面素材の巻物の端部巻止め、包帯や紙おむつ等の固定などにおいて、良好な結束ないし固定性、再使用性、被止め材の非損傷性を示し、適度な締付け性を有して量産性にも優れた止め具の開発を課題とする。

【0005】

【課題を解決するための手段】本発明は、ゴム弾性を有する熱可塑性エラストマからなる伸縮部の両側に硬質プラスチックからなる系止部を一体的に有し、その両側の系止部が同じ側の片面に多数の突起からなる引掛け部を有することを特徴とする止め具を提供するものである。

【0006】

【作用】伸縮部を中間にしてその両側に系止部を一体的に設けてなる上記構成により、伸縮部の応力の系止部へのスムーズな伝達性などに基づいて適度な締付け性と良好な結束ないし固定性をもたせることができる。また、系止部を硬質プラスチックからなる多数の突起で形成したことにより、良好な再使用性と被止め材を傷付ない非損傷性をもたせることができる。

【0007】

【実施例】本発明の止め具は、ゴム弾性を有する熱可塑性エラストマからなる伸縮部の両側に硬質プラスチックからなる系止部を一体的に有し、その両側の系止部が同じ側の片面に多数の突起からなる引掛け部を有してなる。その例を図1、図3～5に示した。1が系止部、2が伸縮部であり、11が引掛け部を形成する突起である。

【0008】伸縮部を形成するゴム弾性を有する熱可塑性エラストマとしては、目的とする締付け性などに応じて適宜な弾性率を有するものを用いることができる。その熱可塑性エラストマの例としては、ポリウレタン系エラストマ、ポリオレフィン系エラストマ、ポリスチレン系エラストマ、軟質ポリ塩化ビニル、各種のゴム系ポリマー等の、特開昭63-86784号公報、特開昭63-142086号公報、実開平1-130359号公報などに記載のものなどがあげられる。

【0009】伸縮部は、通例シート状ないしテープ状に形成される。その寸法は、使用目的などに応じて適宜に決定される。取扱性や製造性ないし加工性等の点よりは、1mm以下、就中0.01～0.5mm、特に0.05～0.2mmの厚さが好ましい。また幅は1～200mm、就中2～100mm、特に3～50mm、長さは5～200mm、就中5～100mm、特に10～20mmが一般的である。なお伸縮部における伸縮性は、前記素材の弾性率のほか、厚さ、幅、長さなどの寸法制御によっても調節することができる。

【0010】系止部は、伸縮部を中間としてその両側に伸縮部と一体的に硬質プラスチックを用いて形成される。硬質プラスチックとしては、適宜なものを用いてよく、その例としてはポリエチレン、ポリプロピレン、ポリスチレン、ポリエステル、ABS樹脂、ポリカーボネート、ポリアミド、ポリアセタール、PBT、PPSなどがあげられる。

【0011】伸縮部と系止部の一体的な形成は、例えば共押出し成形方式などにより行うことができる。従って伸縮部形成用の熱可塑性エラストマと系止部形成用の硬質プラスチックの組合せは、伸縮部と系止部の界面での接着性や系止部、特にその引掛け部の成形性などの点より適宜に決定される。成形性等の点より好ましい組合せとしては、例えばエチレン・プロピレン系エラストマ又はエチレン・ブチレン・スチレン系エラストマとポリア

ロピレンの組合せなどがあげられる。

【0012】系止部の片面に設ける引掛け部は、多数の突起にて形成される。各突起における引掛け構造は、図2(a)～(e)に例示した如く、突起の先端部を鉤ないしフック状にしたもの12、13、14や、茸状にしたもの15、16などの、例えば織布や不織布、パイル状生地等の粗面素材における繊維や糸などに絡まったり、繊維間等に嵌合して引掛かる適宜な構造とすることができる。従ってマジックテープで公知で突起形状などとすることもできる。

【0013】引掛け部は、取扱を容易とするため伸縮部の両側の系止部において同じ側となるように設けられる。突起が鉤ないしフック状の先端部を有する場合、その先端部の向きが図例の如く各系止部で統一され、両端部の系止部で互いに向き合った状態のときは結合力が相互に働いて強力になる利点がある。かかる突起における先端部の向きは、止め具の取外し性にも関係するので、本発明においては前記の統一、向合い状態に限定されず、取外し性等に応じて各系止部での統一性や、両端部の系止部での向合い性などについては適宜に決定してよい。

【0014】系止部の引掛け部における突起の密度については、結合力や取外し性などに応じて適宜に決定してよい。一般には、1cm²あたり、1個以上、就中3～1000個、特に5～200個の突起密度とされる。

【0015】系止部の寸法は、使用目的などに応じて適宜に決定され、取扱性等の点よりは、1mm以下、就中0.01～0.5mm、特に0.05～0.2mmの厚さ（突起部を含まず）が好ましい。また突起の高さは、強度等の点より1mm以下、就中、加工性等を含めて0.1～1.0mm、特に0.4～0.6mmが好ましい。幅は1～200mm、就中2～100mm、特に3～50mm、長さは5～50mm、就中5～30mm、特に12～20mmが一般的である。なお系止部は、突起部を含めてその厚さが例えば0.1mm以下などと薄いほど好ましい。

【0016】上記した伸縮部と系止部を一体的に形成するための共押し成形方式の具体例としては、2台の押し機を用いて1個のダイで成形する方式などがあげられる。すなわち2台の押し機のノズルを1個のダイに連結し、ダイの出口で伸縮部形成用の熱可塑性エラストマが中間部に位置し、その両側に系止部形成用の硬質プラスチックが位置する状態で合流するように共押しすることにより連続シート状態で成形することができる。

【0017】また前記で成形された連続シートを、ダイより出たところで冷却用の第一引取りロールで引取り、その際に第一引取りロールとして表面の一部に多数の孔を形成したものを用いて、その孔にダイより出た系止部形成用の溶融状態の硬質プラスチックが流入するようにプレスロールを介し圧着して冷却し、その後、第一引取

りロールから第二引取りロールに引取ると共にその後工程で、第一引取りロールの孔を介して形成された突起を熱ロールや熱風ドライヤ等の適宜な熱源を介し加熱処理して突起の先端部を鉤や茸状等の所定形状に成形することにより、目的とする止め具が連続シート状態で連続的に形成することができる。止め具は、その連続シートを所定幅で裁断することにより得られる。

【0018】本発明においては図3や図5に例示したように、引掛け部を有する系止部1の裏面側に前記引掛け部と結合する保持層3、6を有する止め具とすることもできる。これによれば、一方の系止部における引掛け部を他方の系止部における保持層に結合させてリング状物を形成でき、棒体や線材等の結束具として用いることもできる。保持層としては、織布や不織布、パイル状生地等の粗面素材などを用いることができる。

【0019】保持層は、図3の如く系止部1の裏面に直接固着することもできし、図5の如く系止部1の裏面側に接着剤層5を介して固着することもでき、適宜な固着方式をとることができる。前記の直接固着は、例えば上記した突起の形成工程におけるプレスロールを介した圧着の際に、第一引取りロールとプレスロールの間に保持層形成材を導入してラミネート処理する方式などにより行うことができる。接着剤層を介した固着処理は、適宜な段階で行うことができる。

【0020】前記において保持層を密着性よく固着処理して止め具の耐久性を向上させる点などよりは、図4に示した如く、引掛け部を有する系止部1を硬質かつ強靱なプラスチック層で形成し、系止部1の裏面に接着剤良密着性のプラスチック層4を設けることが好ましい。従ってこの場合には、保持層6は、系止部1の裏面側にプラスチック層4を介して設けられ、接着剤によるとときには図5の如く、プラスチック層4と接着剤層5を介して系止部1の裏面側に保持層6が設けられる。

【0021】前記の系止部を形成する硬質かつ強靱なプラスチックとしては、例えばポリプロピレン、ポリアミド、ポリエステルなどがあげられる。一方、接着剤良密着性のプラスチックとしては、前記の硬質かつ強靱なプラスチック層との密着性等の点より、例えば当該硬質かつ強靱なプラスチックの変性ポリマーや共重合体、エチレン・酢酸ビニル共重合体等の接着剤として利用されることのあるポリマーなどが好ましい。

【0022】前記の接着剤良密着性のプラスチック層に対しては、アクリル系やゴム系、スチレン・イソブレンブロックポリマー系等の適宜な粘着剤を用いてなる両面粘着テープにても保持層の良好な接着が可能となる。なお接着剤良密着性のプラスチック層に付設した両面粘着テープは、保持層の固着以外の適宜な接着目的に利用することもできる。

【0023】系止部裏面への接着剤良密着性のプラスチック層の付設は、上記した共押し成形方式による連続

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シートの形成の際に、更に1台の押出し機を付加して、従って3台の押出し機のノズルを1個のダイに連結して、ダイの出口で系止部形成用の硬質プラスチックと接着剤良密着性の層の形成用プラスチックが重畳状態に合流するように共押出しすることにより効率よく成形することができる。その場合、系止部形成用の硬質プラスチック層が上記の多数の孔を形成した第一引取りロール側となるように重畳される。

【0024】実施例1

2台の押出し機のノズルを1個のダイに連結し、ダイの出口で伸縮部形成用の熱可塑性エラストマが中間部に位置し、その両側に系止部形成用の硬質プラスチックが位置する状態で合流するように共押出しする方式により、エチレン・プロピレン系エラストマ部の両側にポリプロピレン部を有する連続シートを成形し、それをダイより出たところでポリプロピレン部に対応させて形成した直径0.5mm、深さ1mmの孔を1mm間隔で多数設けた冷却用の第一引取りロールで引取り、同時にプレスロールを介し圧着して冷却した後、第二引取りロールで引取りつつ連続シート上に形成された突起の先端部を150～160℃の熱盤に瞬間的に接触させその後、直ちに100℃以下に冷却して先端部が鉤状に曲った高さ約0.6mmの突起を形成し、その連続シートを30mm幅に裁断してシート部の厚さが0.1mmの止め具を連続的に得た。

【0025】前記の止め具を織布反物の巻取端の巻止めとして使用したところ、良好に巻止めすることができ、巻止め・取外し操作を10回繰り返した後の11回目の巻止め及び取外しも良好に行うことができた。また取外し後の反物について目視観察したが生地破れなどの損傷は認められなかった。

【0026】実施例2

プレスロールで圧着する際に第一引取りロールとプレスロールの間に、ポリプロピレン部に対応した幅のフェイスタオル生地を突起形成のポリプロピレン部の裏面に位置するように挿入してラミネートしたほかは実施例1に準じて止め具を得た。

【0027】前記の止め具をパイプ、又は電気コードの

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結束具として使用したところ、いずれの場合にもバラケを生じない良好な状態に結束することができた。また結束・取外し操作を10回繰り返した後の11回目の結束及び取外しも良好に行うことができた。

【0028】実施例3

3台の押出し機のノズルを1個のダイに連結し、ダイの出口でポリプロピレン部とエチレン・酢酸ビニル共重合体部が重畳状態で合流するように共押出して連続シートを成形したほかは実施例1に準じて止め具状となった連続シートを得た。なお、ポリプロピレン層とエチレン・酢酸ビニル共重合体層の厚さは同厚であった。

【0029】次に前記連続シートのエチレン・酢酸ビニル共重合体面にアクリル系両面粘着テープを介してフェイスタオル生地をラミネートし、それを実施例1に準じ裁断して止め具を得た。前記の止め具をパイプ、又は電気コードの結束具として使用したところ、実施例2の場合と同様に良好な結果であった。

【0030】

【発明の効果】本発明によれば、伸縮性を有して適度な締付け性を示し、結束性ないし固定性に優れて繰返し使用することができ、布等の被止め材に損傷を与えにくくて量産が容易であり、織布や不織布等の粗面素材の巻物における端部巻止めや、包帯や紙おむつ等の固定などに幅広く使用できる止め具を得ることができる。

【図面の簡単な説明】

【図1】実施例の断面図

【図2】突起形状例の説明図

【図3】他の実施例の断面図

【図4】さらに他の実施例の断面図

【図5】さらに他の実施例の断面図

【符号の説明】

1：系止部

11, 12, 13, 14, 15, 16：突起

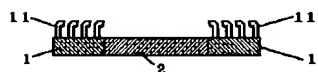
2：伸縮部

3, 6：保持層

4：接着剤良密着性のプラスチック層

5：接着剤層

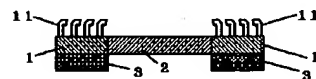
【図1】



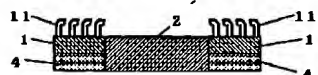
【図2】



【図3】



【図4】



【図5】

